

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

1. In a well bore operation in which a particulate is added to a fluid stream, a method of determining the concentration of said particulate in said fluid stream comprising the steps of:

measuring the rate of flow of said fluid stream;

determining the rate of particulate flow in said fluid stream using an acoustic sensor; and

calculating the concentration of particulate in said fluid stream using results from said measuring and determining steps.

2. The method of claim 1 wherein said measuring is performed by a flow meter.

3. The method of claim 2 wherein said flow meter is placed along said fluid stream at a point before said particulate is added to said fluid stream.

4. The method of claim 2 wherein said flow meter is placed along said fluid stream at a point after said particulate is added to said fluid stream.

5. The method of any of claim 4 wherein said acoustic sensor is placed at a location along said fluid stream where said fluid stream is forced to change directions.

6. The method of any of claim 5 further comprising the step of filtering of noise between said determining step and said calculating step.

7. In a fluid conveying operation having a fluid line for carrying a fluid mixed with a particulate, an apparatus for measuring the concentration of the particulate in the fluid comprising:

a fluid flow meter located within the fluid line for measuring the rate of flow of the fluid;

an acoustic sensor located outside the fluid line near a bend in the fluid line for measuring the rate of particulate flow; and

a calculating means for determining the concentration of the particulate using data from said fluid flow meter and said acoustic sensor.

8. The concentration measuring apparatus of claim 7 further comprising a digital signal processor located between said acoustic sensor and said calculating means for reducing the noise detected by said acoustic sensor.

9. In a well bore operation having a clean fluid line leading to a blender, the blender mixing a particulate with a clean fluid to create a slurry, a slurry line from said blender to a high pressure pump, the high pressure pump pumping the slurry to a wellhead using a high pressure line, a system for measuring the concentration of the particulate within the fluid comprising:

a fluid flow meter affixed within the clean fluid line for measuring the rate of fluid flowing;

an acoustic sensor affixed to the exterior of the high pressure line at a bend in the high pressure line, the acoustic sensor measuring the rate of particulate flow; and

a calculating means for calculating the concentration of particulate using data from said fluid flow meter and said acoustic sensor.

10. The concentration measuring system of claim 9 further comprising a digital signal processor located between said acoustic sensor and said calculating means for reducing the noise detected by said acoustic sensor.